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Autographa gamma (Linnaeus, 1758) (= *A. messmeri* Schadewald, 1992, **syn. n.** ; = *A. voelkeri* Schadewald, 1992, **syn. n.**) and *Phlogophora meticulosa* (Linnaeus, 1758) (= *P. lamii* Schadewald, 1992, **syn. n.**) (Lepidoptera, Noctuidae)

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Summary

The recently described taxa *Autographa messmeri* Schadewald, 1992 and *Autographa voelkeri* Schadewald, 1992 are synonymised with *Autographa gamma* (Linnaeus, 1758). *Phlogophora lamii* Schadewald, 1992 is a synonym of *Phlogophora meticulosa* (Linnaeus, 1758).

Zusammenfassung

Die neubeschriebenen Taxa *Autographa messmeri* Schadewald, 1992 und *Autographa voelkeri* Schadewald, 1992 werden mit *Autographa gamma* (Linnaeus, 1758) synonymisiert. *Phlogophora lamii* Schadewald, 1992 ist ein Synonym von *Phlogophora meticulosa* (Linnaeus, 1758).

Résumé

Les taxons récemment décrits *Autographa messmeri* Schadewald, 1992 et *Autographa voelkeri* Schadewald, 1992 sont mis en synonymie avec *Autographa gamma* (Linnaeus, 1758). De même, *Phlogophora lamii* Schadewald, 1992 est un synonyme de *Phlogophora meticulosa* (Linnaeus, 1758).

Introduction

The late Gerhard Schadewald recently described two new species of *Autographa* (Atalanta 23 (3/4) : 577-580, 1992) and one new *Phlogophora* (Atalanta 23 (3/4) : 589-591, 1992). The papers by Schadewald were followed by two supplementary articles by Ulf Eitschberger (1992). None of these papers gave reliable characters for the description of new species. The author does not consider them to be valid species,

and they are here synonymised with *Autographa gamma* (Linnaeus, 1758) and *Phlogophora meticulosa* (Linnaeus, 1758) respectively.

Since 1983, I have had a good and regular correspondence with Gerhard Schadewald, with whom I became acquainted during a visit to Wolfgang Heinicke. Over the years, he sent me many different species or species-groups for determination and discussion, including the species in question : *A. gamma* and *P. meticulosa.* Among this material is a series of 7 *A. gamma* from the same rearing as the paratypes of "*A. messmeri*" (Schadewald, 1992), and another 4 specimens, taken the same dates and places as the mother to the paratype series.

Samples of both sexes from these series have been studied, together with *A. gamma* from Denmark, Spain, Serbia, Greece, Libya, and Turkmenistan. Samples of both sexes of *P. meticulosa* have also been studied from various places in Europe.

Results

The *Autographa* taxa

The two new taxa described by Schadewald (1992), *A. messmeri* and *A. voelkeri* are claimed to differ from *A. gamma* mainly by differences in the shape of the valves in the male genitalia, the sclerotisation of the bursa in the female genitalia and in the postmedian line of the forewing.

The valves of the male genitalia of the Plusiinae often exhibit infraspecific variation concerning the length, breadth and shape ; even in the length of the clasper. Apparently, Schadewald was not aware of this fact. The reliable structures are the everted vesica of the aedeagus and the female genitalia. Schadewald mentions differences in "Der pigmentierte Teil der Bursa" ["The pigmented part of the bursa"], which presumably means the upper part of the sclerotised ductus bursa and the basal part of the corpus bursa. These "differences" are a result of the preparation technique, but if there had been differences here, they would have to have been matched by the structure of the everted vesica and the size and position of the two cornuti. These cornuti are identical in all three taxa, and so is the tube of the everted vesica in all preparations I have done or have seen, including those shown in the papers by Schadewald (1992) and Eitschberger (1992). The problem with these photographs is that the aedeagi are shown in different positions : some have the large cornutus to the right, some to the left, the aedeagus seminalis is pointing upwards in some, and downwards in others. If the vesica is not everted, the size and length

of the two cornuti are difficult to compare. Before the vesica is everted, the position of the large cornutus is in the basal, globular and largest part of the aedeagus. There is so much space here that the cornutus can be in any position, each time looking different. This situation also makes the vesica technically difficult to evert.

The run of the forewing postmedian line is different from specimen to specimen ; in fact the specimens I received from Schadewald from the *ab ovo* rearing (from where the paratype series of *A. messmeri* comes) comprise all three "species" when using this character.

Many Lepidoptera have two (or more) generations per year and very often the first and second generation adults are phenotypically different. One of the more striking examples of this is the two generations of the butterfly *Araschnia levana* (Linnaeus, 1758). Also *Autographa gamma* has a different appearance in the spring generation compared with the summer or autumn generation(s). Specimens of the spring generation are often small, with a more greyish ground colour, and the later generations are often more brownish and with a larger wingspan. However, the genitalia are identical.

For the above reasons it is not possible to maintain species status for the new *Autographa* taxa, and *A. messmeri* Schadewald, 1992 and *A. voelkeri* Schadewald, 1992 are therefore synonymised with *A. gamma* (Linnaeus, 1758), **syn. n.**

The *Phlogophora* taxa

The beautiful species *Phlogophora meticulosa* (Linnaeus, 1758) varies in ground colour from greenish-beige, to light or dark brownish and to the rare reddish-brown form. This variation pattern is frequently seen in many other of the approx. twenty *Phlogophora* species in the world. The extreme examples occur in the *Phlogophora* of the Azores in the Atlantic. The many taxa here are in urgent need of a revision.

The morphological character upon which the new taxon by Schadewald (1992) is described is the sharp angle of the postmedian line of the forewing. However, this is a variable infraspecific character in *Phlogophora meticulosa* (L.).

P. lamii is also described on the basis of a different bionomy compared to that of *P. meticulosa. P. meticulosa* is a well known migrant in Europe. Schadewald (1992) states that the new *Phlogophora* species is not a migrant and has two generations in Jena, Germany, the first from the end of May to the middle of July, the second from the

beginning of August to the beginning of October. So has *P. meticulosa*, though it may also occur until November/December. Many migrants arrive in the spring and the first summer months to the areas of Europe where in normal years they cannot overwinter. However, because of mild winters it is sometimes possible for migrants to survive in areas where they normally cannot breed.

P. lamii is claimed to lay eggs in small groups, whereas *P. meticulosa* lays its eggs individually. *P. lamii* is also considered to prefer feeding on *Lamium album* in the autumn. Many females prefer to lay their eggs on the leaves or flowers of a certain plant species or plant family. If this plant or plant family is not present there are many examples of the species finding substitute plants on which the eggs are laid. This is not a sufficient basis for describing a new species. Neither is the fact that some females are observed laying their eggs either singly or in small groups.

In order to try to find necessary evidence for the new taxa, I have made genitalia preparations of both males and females which, according to the superficial differences mentioned by Schadewald (1992), should represent both *P. meticulosa* and *P. lamii*. Gerhard Schadewald did not evert the vesicas of aedeagi, neither did he prepare the female genitalia so that they could be compared with the structure of the everted vesica.

The genitalia of both sexes of both taxa are identical. They represent one species : *Phlogophora meticulosa* (L.). The corpus bursa is bisaccate. The bursa copulatrix is pear-shaped. The appendix bursa arises close to the ductus bursa. It is very thin, twice as long as the bursa copulatrix, and coils five times. This structure matches the extremely long, five-coiled, everted vesica of the aedeagus.

It is very difficult to inflate and make a good preparation of the everted vesica of *P. meticulosa*. When the vesica is moved from alcohol to euparal, it will inevitably collapse like the slough of a snake. When placed in thick euparal it is necessary to reinsert the needle of the hypodermic syringe filled with alcohol into the aedeagus and evert the vesica again with a quick, hard push. This will evert half of the vesica and make the preparation swim in a mixture of euparal with too much alcohol. When most of the extra alcohol has evaporated, the process is repeated again and again until all of the vesica is swollen. (The same technique is necessary when making a preparation of an *Agrotis* vesica.)

For the above reasons it is not possible to maintain species status for the new *Phlogophora* taxa, and *P. lamii* Schadewald, 1992 is therefore synonymised with *P. meticulosa* (Linnaeus, 1758), **syn. n.**

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